DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 29, 2007 has been entered.

The Examiner acknowledges the applicant's remarks and arguments of October 29, 2007 made to the office action filed September 13, 2007. Claims 1-5, 8-10, and 12-16 are pending. Claim 1 is amended and claim 16 is new. Claims 8 and 9 are canceled.

In light of the amendments, the 35 U.S.C. 103(a) rejection of claim 9 as being unpatentable over Gelber et al. in view of Adams et al., Kamishita et al., and Beerse et al. as applied to claims 1-5, 8-10 and 12-15 above and in further view of Betbeber et al. is withdrawn.

The Applicant's arguments of the 35 U.S.C. 103(a) rejection of claims 1-5, 8-10 and 12-15 as being unpatentable over Gelber et al., in view of Adams et al., Kamishita et al., and Beerse et al. were not found persuasive, and thus upheld.

Due to the amendment to the claims, the new and modified 35 U.S.C. 103(a) rejection is made below. The Applicant's arguments are addressed below.

Priority

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. The treatment of SARS is not disclosed in the prior-filed application 09/692,634 or 09/421,131 and therefore has an effective filling date of 02/02/2004. The respiratory tract composition is not disclosed in the prior-filed application 09/421,131, but is disclosed in the 09/692,634 application, thus the effective filling date for the composition is 10/19/2000.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 10 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gelber et al. (US 2001/0044410 A1) in view of Adams et al. (US 2004/0077601), in view of Kamishita et al. (5,158,761), and in further view of Beerse et al. (US 6,294,186 B1).

Gelber et al. teaches a method and composition that treats a condition caused by an immune response to a virus (see abstract, lines 1, 5-6, and 13-15) and respiratory system (see page 5, paragraph 56, lines 2-3). The aqueous saline solution of the composition can be applied by a spray, which is administered onto the nasal mucosa (see page 7, paragraph 69, lines 8-10; addresses applicant's claims 12-15). Preferred ingredients for the formulation include zinc acetate, zinc gluconate, zinc oxide, citric acid (see page 5, table 3; addresses applicant's claims 1 in part and 3-5), and ascorbic acid (see page 2, paragraph 13, column 2, line 1 and page 3, paragraph 31, line 15; addresses applicant's claim 1 in part). In regards to the pH of the composition, it is inherent that the composition have a pH from about 3.0 to about 5.5 because Gelber et al. teaches a composition comprising ascorbic acid, which has a pH of about 3. Zinc gluconate is administered in the range of approximately 0.1 mg to 15mg (see page 9, paragraph 73, line 30; addresses applicant's claim 1 in part) or 2.5 mg to 30 mg (see page 10, paragraph 85, lines 8-9). Ascorbic acid is administered in the range of

approximately 50 mg to 1000 mg (see page 9, paragraph 73, line 33; addresses applicant's claim 1 in part).

Gelber et al. does not specifically teach a method of treating SARS. Gelber et al. also does not teach a composition comprising a mucoadhesive polymer (applicant's claim 1c); thermoreversible polymers (applicant's claim 1c); a viscosity of from about 1 cps to about 2000 cps (applicant's claim 1d); a sensate (applicant's claim 16); or a pH adjusting agent (applicant's claim 10).

Adams et al. teaches a method of stimulating an immune response of a viral infection (see claim 134) such as a SARS infection (see claim 137; addresses applicant's claim 1 in part). The administration of the method may be delivered in the form of an aerosol spray (see page 40, paragraph 361, line 3) mucosally (see page 40, paragraph 364, line 2) to the nose (see page 41, line 8).

Kamishita et al. teaches a spray base gel composition comprising an aqueous solution of carboxyvinyl polymer with a water-soluble basic substance with a viscosity within the range of 500-5,000 cps (see abstract; lines 1, and 3-6; addresses applicant's claims 1d and 12-14). A pH value of the spray gel is adjusted to the desired pH with a water-soluble basic substance such as sodium hydroxide (see column 3, lines 40 and 42) or other pH adjustors taking into consideration the stability or absorption of an active medicament (see column 4, lines 25-29; addresses applicant's claim 10). In order to

improve the spread-stick property in sprays of an aqueous solution and increase the viscosity, generally thickeners such as hydroxypropyl cellulose, hydroxypropyl methylcellulose and polyvinylpyrrolidone (PVP) are used (see column 1, lines 59-66, column 7, table 1, lines 3, 4, and 6; addresses applicant's claim 1c). The pH of the composition rages from 4-9 (see claim 1, line 3; addresses applicant's claim 1). The preparation is applied to mucous membranes in the nasal cavity (see column 6, lines 47-50; addresses applicant's claims 12, 13 and 15). The preparation is useful in a clinical use, like an influenza vaccine (see column 6, lines 11-13).

Beerse et al. teaches antimicrobial compositions comprising an effective amount of a benzoic acid analog, a metal salts such as Mn, Ag, Zn, Sn, Fe, Cu, Al, Ni, Co, Ti and combinations thereof (see column 7, lines 2, 8 and 9) and a dermatologically acceptable carrier wherein the composition has a pH of from about 1 to about 7 which provide enhanced immediate as well as residual anti-viral efficacy against viruses (see abstract, lines 1-3, 7, and 10-12; addresses claim 1). The method is used to treat the area of the nose, nasal canal or passage (see column 47, lines 34-36 and examples 39 and 40). The carrier of the present invention may comprise an aqueous solution with about 0.01% to about 10% of one or more thickeners such as polymeric materials such as methyl cellulose, carboxymethyl cellulose, hydroxyl propylmethyl cellulose (see column 9, lines 55 and 60-63; column 10, lines 39 and 40; and column 26, line 56), hydroxyethyl ethylcellulose (i.e. ethylhydroxy ethylcellulose; see column 37, line 2; addresses claim 1c). As a preferred embodiment, where the composition is to be in

contact with human keratinous tissue (i.e. nose) a wide variety of non-limiting cosmetic and pharmaceutical ingredients commonly used in the personal car industry are suitable for use in the compositions of the invention (see column 19, lines 57, 58 and 65-67), such as skin sensates (see column 20, line 4). Skin sensates can be present at a level of from about 0.01% to about 10% or it can be modified to provide the desired level of consumer perceived sensation (see column 43, lines 65-67 to column 44, lines 1-5; addresses claim 16).

To one of ordinary skill in the art at the time of the invention would have found it obvious and motivated to combine the method of Gelber et al. with a method to treat SARS is because of the following teachings: (1) Adams et al. teaches a method of treating a viral infection, particularly SARS with a nasal spray composition and (2) Gelber et al. teaches compositions to treat viral infections that are respiratory infections. The motivation to combine a method of Gelber et al. with a method to treat SARS is because Gelber et al. teaches compositions to treat viral infections, particularly respiratory infections (i.e. influenza). Thus, since SARS is a respiratory infection caused by a virus, and Gleber et al. (see abstract, lines 5-6 and see page 5, paragraph 56, lines 2-3) compositions and methods treat viral infections, particularly respiratory infections, then the compositions of Gleber et al. would treat SARS.

To one of ordinary skill in the art it would be obvious to combine the composition of Gleber et al. with a viscosity of from about 1 cps to about 2000 cps, and a pH

adjusting agent is because (1) both Kamishita et al. and Gleber et al. teach aqueous, nasal spray respiratory anti-viral compositions and methods that are applied to the nasal mucosal tissue; and (2) Kamishita et al. teaches a composition having a pH of 4-7 (see claim 1, line 3) with a viscosity of 500-5,000 cps (see claim 1, line 3), comprising hydroxypropyl cellulose or hydroxymethyl cellulose (see column 1, lines 59-66, column 7, table 1, lines 3, 4, and 6), and the pH adjuster sodium hydroxide see column 3, lines 40 and 42).

The motivation to combine a composition of Gelber et al. and Adams et al. with a mucoadhesive polymer, a pH adjustor, and a viscosity of from about 1 cps to about 2000 cps is because Kamishita et al. teaches a composition comprising a pH adjustor (i.e sodium hydroxide; see column 3, lines 40 and 42) and wherein the composition has a viscosity within the range of 500-5000 cp so that (1) the particle size distribution of the spray after spraying is 80% in the area of 20-100 μm (see column 3, lines 10-16), (2) the spead-stick property of the spray may be effective (see column 1, lines 59-62), and (3) to keep in consideration the stability or absorption of an active medicament (see column 4, lines 25-29). Thus, having a composition comprising a pH adjustor and a viscosity of from about 1 cps to about 2000 cps would increase the efficacy of the spray to treat SARS by providing excellent spray base properties (see column 2, lines 40-45). A prima facie case of obviousness typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art. E.g., In re Geusler, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575,

1578, 16 USPQ2d 1934, 1936-37 (CCPA 1976); In re Malagari, 449 F.2d 1297, 1202, 182 USPQ 549, 553 (CCPA 1974). It is the normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages. See In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980) ("[D]iscovery of an optimum value of the result effective variable in a known process is ordinarily within the skill of the art." See, e.g., In re Baird, 16 F.3d 380, 29 USPQ2d 1550 (Fed. Cir. 1994); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). *In re Paterson* Appeal No. 02-1189 (Fed. Cir. January 8, 2003).

To one of ordinary skill in the art at the time of the invention would have found it obvious and motivated to combine the method of Gelber et al. and a sensate is because the following teachings: (1) both Gelber et al. and Beerse et al. teach a metal salt composition that treat antiviral conditions that an be applied nasally; (2) Beerse et al. teaches a wide variety of non-limiting cosmetic and pharmaceutical ingredients commonly used in the personal care industry are suitable for use in the compositions of the invention (see column 19, lines 57, 58 and 65-67), such as skin sensates (see column 20, line 4); and (3) Beerse et al. continues to teach that the skin sensates can be present at a level of from about 0.01% to about 10% or it can be modified to provide the desired level of consumer perceived sensation (see column 43, lines 65-67 to column 44, lines 1-5). Thus, the motivation to include the sensate is because sensates

are commonly used in personal care for the patient's (i.e. consumer) perceived sensation and it is used in anti-viral compositions as taught by Beerse et al.

To one of ordinary skill in the art it would be obvious to combine the composition of Gleber et al. and a mucoadhesive polymer selected from polymeric cellulose derivatives selected from those disclosed in claim 1c and thermoreversible polymers selected from poloxamers or ethylhydroxy ethylcelluloses and mixtures thereof from about 0.01% to about 20% because of the following teachings: (1) Kamishita et al., Beerse et al. and Gleber et al. all teach aqueous, nasal anti-viral compositions and methods; (2) Kamishita et al. teaches a composition comprising hydroxypropyl cellulose or hydroxymethyl cellulose (see column 1, lines 59-66, column 7, table 1, lines 3, 4, and 6); (3) Beerse et al. teaches a composition comprising from about 0.01% to about 10% thickeners such as polymeric materials such as methyl cellulose, carboxymethyl cellulose, hydroxyl propylmethyl cellulose (see column 9, lines 55 and 60-63; column 10, lines 39 and 40), hydroxyethyl ethylcellulose (i.e. ethylhydroxy ethylcellulose; see column 37, line 2); and (4) although hydroxyethyl ethyl cellulose is not labeled as a thermoreversible polymer, products of identical chemical composition can not have mutually exclusive properties *In re Spada*, 911 F. 2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Thus, the use of mucoadhesive polymers and thermoreversible polymers selected from claim 1c are known in the art to be used in nasal anti-viral compositions to treat viral conditions as taught by Kamishia et al. and Beerse et al.

Response to Arguments

Applicant's arguments filed June 6, 2007 have been fully considered but they are not persuasive.

> The applicant argues that that each reference or combination of references does not teach all of the limitations of the claims. Particularly, Gelber describes a composition administered in liquid form not a nasal composition. Adams teaches an aerosol spray mucosally for lung tumors.

The Examiner respectfully disagrees, and notes that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The reasons for obviousness and motivation for combining the prior art is addressed above in the office action. In short, Gelber et al. provides the teaching of a nasal viral respiratory tract composition having a pH of from about 3.0 comprising from about 0.01% to about 10% of an organic acid (50mg to 1000mg of ascorbic acid), and from about 0.01% to about 20% of a metal compound as disclosed in claims 1b and 3-5 (i.e. zinc gluconate administered from 0.1 mg to 15 mg and zinc acetate). Adams et al. provides the teaching that SARS infections can be treated with aerosol sprays mucosally. Kamishita et al. provides the teaching of nasal sprays, pH adjusting agents, viscosity ranges, pharmaceutically acceptable vehicles, and thickeners (i.e. mucoadhesive polymers) that can be used in anti-viral compositions. Beerse et al. provides the teaching of thickeners

(i.e mucoadhesive and thermoreversible polymers) and there amounts from about 0.01 to about 10%, and skin sensates from about 0.01% to about 10% for anti-viral compositions.

In terms of the amounts of zinc gluconate and ascorbic acid being disclosed in a liquid form but not a nasal composition, the example demonstrates that the amounts of these components in a liquid composition to meet the limitation of claim 1a (i.e. from about 0.001% to about 20% by weight of an organic acid, claim 1b (i.e. from about 0.01% to about 20% by weight of a metal compound, and claim 12 (i.e. nasal liquid).

As for the composition being nasal, this limitation is also disclosed by Gerber because the aqueous saline solution of the composition can be applied by a spray, which is administered onto the nasal mucosa (see page 7, paragraph 69, lines 8-10). In terms of the administration by inhalation to treat lung tumors, this is just one example of the invention, but the method as a whole can be administered to stimulate an immune response of a viral infection (see claim 134) such as a SARS infection (see claim 137; addresses applicant's claim 1 in part). The administration of the method may be delivered in the form of an aerosol spray (see page 40, paragraph 361, line 3) mucosally (see page 40, paragraph 364, line 2) to the nose (see page 41, line 8).

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENDRA D. CARTER whose telephone number is (571)272-9034. The examiner can normally be reached on 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan can be reached on (571) 272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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